

AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A variable reluctance resolver wherein angular position is determined by detection of permeance between a rotor pole and a stator pole, the resolver comprising:

a rotor and a stator wherein the rotor includes a noncircular core of ~~non-permanent~~ magnetic material which is rotatably supported inside the stator with a magnetic gap therebetween, ~~the shape of the rotor being such that the magnetic gap permeance varies according to a sine function of the rotational angle,~~

said noncircular core including a central circular portion having a circular inner periphery, and a plurality of salient poles protruding ~~on from~~ the ~~periphery of the~~ central circular portion,

wherein each salient pole of the rotor has a center which is offset by a prescribed offset distance in the radial direction from the center of the rotor, and the outer peripheral shape of each salient pole comprises an arc of a circle of radius r which is centered on the center of the salient pole and which does not extend to the inner peripheral surface of the stator,

wherein a shape of said rotor is such that a permeance of the magnetic gap varies according to a sine function for the rotational angle and said offset distance.

2. (Original) A variable reluctance resolver as claimed in claim 1 wherein the shape of the rotor is defined in accordance with the rotational angle, which is expressed by the mechanical angle ϕ or the electrical angle θ corrected by the shaft angle multiplier, and the offset distance A such that the outer radius Rr of the rotor has a value given by the following equation:

$$R_r = A \cos \phi + \sqrt{r^2 - A^2 \sin^2 \phi} = A \cos(\theta / N) + \sqrt{r^2 - A^2 \sin^2(\theta / N)}$$

wherein r is the radius of each salient pole, A is the offset distance, ϕ is the mechanical angle ($\phi = \text{electrical angle } \theta / \text{shaft angle multiplier } N$), θ is the electrical angle, and N is the shaft angle multiplier.

3. (Previously Presented) A variable reluctance resolver as claimed in claim 1 wherein the shape of the rotor is defined in accordance with the rotational angle, which is expressed by the mechanical angle ϕ or the electrical angle θ corrected by the shaft angle multiplier, such that the gap δ between the stator and the rotor has a value given by the following equation:

$$\delta = R_s - A \cos \phi + \sqrt{r^2 - A^2 \sin^2 \phi} = R_s - A \cos(\theta / N) + \sqrt{r^2 - A^2 \sin^2(\theta / N)}$$

wherein δ is the gap, R_s is the inner radius of the stator, A is the offset distance, ϕ is the mechanical angle ($\phi = \text{electrical angle } \theta / \text{shaft angle multiplier } N$), θ is the electrical angle, N is the shaft angle multiplier, and r is the radius of each salient pole.

4. (Currently Amended) A variable reluctance resolver as claimed in claim 2 wherein the rotor includes ~~as~~ at least four abutting salient poles protruding from and evenly spaced around the periphery of the central circular portion.

5. (Currently Amended) A variable reluctance resolver as claimed in claim 3 wherein the rotor includes ~~as~~ at least four abutting salient poles protruding from and evenly spaced around the periphery of the central circular portion.